

Coliform Bacteria and Drinking Water

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Public water systems are required to deliver safe and reliable drinking water to their customers 24 hours a day, 365 days a year. If the water supply becomes contaminated, consumers can become seriously ill. Fortunately, many steps are being taken to ensure that the public is provided with safe drinking water. One of the most important steps is to have the water tested for coliform bacteria. Public water systems must test for coliform bacteria regularly.

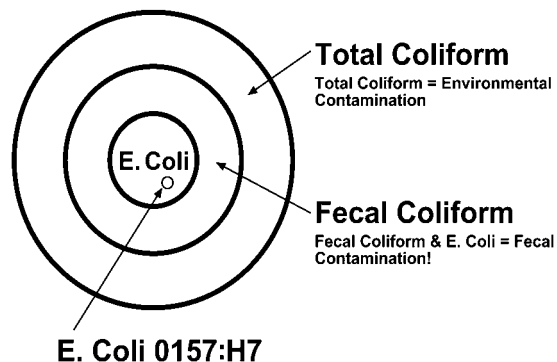
What are coliform bacteria?

Coliform bacteria are organisms that are present in the environment and in the feces of all warm-blooded animals and humans. Coliform bacteria will not likely cause illness. However, the presence of coliform bacteria in drinking water indicates that disease-causing organisms (pathogens) may be present in the water system. Most pathogens that can contaminate water supplies come from the feces of humans or animals. Testing drinking water for all possible pathogens is complex, time-consuming, and expensive. It is relatively easy and inexpensive to test for coliform bacteria. If coliform bacteria are found in a water sample, steps are taken to find the source of contamination and restore safe drinking water. There are three different groups of coliform bacteria; each has a different level of risk.

Total coliform, fecal coliform, and *E. coli*

Total coliform, fecal coliform, and *E. coli* are all indicators of drinking water quality. The total coliform group is a large collection of different kinds of bacteria. The fecal coliform group is a sub-group of total coliform and has fewer kinds of bacteria. *E. coli* is a sub-group of fecal coliform. (See the diagram below.) When a water sample is sent to a lab, it is tested for total coliform. If total coliform is present, the sample will also be tested for *either* fecal coliform or *E. coli*, depending on the lab testing method.

TOTAL COLIFORM, FECAL COLIFORM AND *E. COLI*



Total coliform bacteria are commonly found in the environment (e.g., soil or vegetation) and are generally harmless. If only total coliform bacteria are detected in drinking water, the source is probably environmental. Fecal contamination is not likely. However, if environmental contamination can enter the system, there may be a way for pathogens to enter the system. Therefore, it is important to determine the source and to resolve the problem.

Fecal coliform bacteria are a sub-group of the total coliform group. They appear in great quantities in the intestines and feces of people and animals. The presence of fecal coliform in a drinking water sample often indicates recent fecal contamination – meaning that there is a greater risk that pathogens are present than if only total coliform bacteria is detected.

E. coli is a sub-group of the fecal coliform group. Most *E. coli* are harmless and are found in great quantities in the intestines of people and warm-blooded animals. Some strains, however, may cause illness. The presence of *E. coli* in a drinking water sample almost always indicates recent fecal contamination – meaning that there is a greater risk that pathogens are present.

A Note about *E. coli*: *E. coli* outbreaks receive much media coverage. Most outbreaks have been related to food contamination, caused by a specific strain of *E. coli* known as *E. coli* O157:H7. When a drinking water sample is reported as “*E. coli* present” it does not mean that this specific strain is present and in fact, it is probably not present. However, it does indicate recent fecal contamination. Boiling, or treating contaminated drinking water with a disinfectant, destroys all forms of *E. coli*, including O157:H7.

What happens if coliform bacteria are found in my water?

When coliform bacteria are found, steps are taken to identify where the contamination may have entered the water system. More “repeat” samples are collected and an inspection is recommended. Taking repeat samples helps determine whether an actual problem exists in the system. Sometimes a sample shows the presence of coliform because of poor sampling techniques or because a contaminated faucet was used – not because an actual problem exists. If any of the repeat samples detect coliform bacteria, the initial findings are considered confirmed.

What happens if total coliform bacteria are confirmed in my water?

If total coliform bacteria are confirmed in your drinking water, a system inspection should be conducted to find and eliminate any possible sources of contamination. Once the source is identified, it can usually be resolved by making system repairs, flushing, and/or “shock” chlorinating the system (adding chlorine for a short period of time.) The department is usually in contact with water systems and utility managers to help resolve the problem. Your water system or utility is required to notify you within 30 days about the situation. The department recommends that notice be distributed as soon as possible. The notice will inform you of actions being done to correct the problem, when the problem will likely be resolved, and will advise you of any actions that you may need or want to take until then.

What happens if fecal coliform bacteria or *E. coli* are confirmed in my water?

Confirmation of fecal coliform bacteria or *E. coli* in a water system indicates recent fecal contamination, which may pose an immediate health risk to anyone consuming the water. Responding to health emergencies is the department’s highest priority. The department will conduct an inspection of the system as soon as possible to assist the water system in resolving the problem. More sampling will be conducted to find and eliminate potential contamination sources, and shock chlorination and flushing of the system will most likely occur. A “Health Advisory” will be issued within 24 hours to alert all water users that there is a health risk associated with the water supply. In most cases, the use of boiled or bottled water will be recommended for drinking and cooking. The notice will inform you of actions being done to correct the problem, and when the problem will likely be resolved. The Health Advisory will remain in effect until the situation is resolved and the water is considered safe to drink.

For more information:

Northwest Regional Office – Kent

Coliform Program: 253-395-6775 Main Office: 253-395-6750

Southwest Regional Office – Tumwater

Coliform Program: 360-236-3044 Main Office: 360-236-3030

Eastern Regional Office – Spokane

Coliform Program: 509-456-2788 Main Office: 509-456-3115

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